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PRODUCTION

The Magazine of Motion Picture Photography



FEATURES
IN THIS
ISSUE

- Better 16mm Prints With The 35 32mm Method
 - A Set Lighting Unit That Mounts Anywhere
 - Filming An Operation For TV
- PLUS—WHAT EVERY YOUNG ANIMATOR SHOULD KNOW



Here, left to right, pictured on the set of "Pretty Boy Floyd" are star John Emson, Burgi, sporting sensation Chuck Austin and DuPont Technical Representative J. Harrison Bennett.

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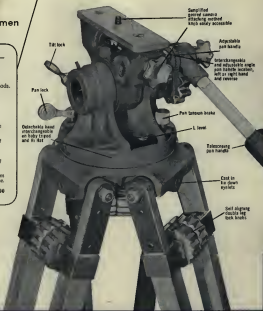
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ON THE COVER

WHILE DIRECTOR GEORGE SIDNEY (second, left) re-hearses a scene for Columbia Pictures' "Who Was That Lady?" with Dean Martin and Janet Leigh (out of picture), cinematographer Harry Stradling, A.S.C. (far left) places his camera setup with the Mitchell camera mounted on a crane dolly. Tony Curtis (second, right), who is stars with Janet Leigh and Dean Martin, looks on with interest.—Photo by St. Helene

*Feature Articles

WHY THE 35/32MM RATIO RESULTS IN BETTER 16MM PRINTS 34
Enter France, greater economy improved sound results of fewer laboratory process for making 16mm release prints

FAIRE "VIBRO M" 16MM CAMERA 36
Product report on French-made camera that features reflex viewing and variable shutter

WHAT EVERY YOUNG ANIMATOR SHOULD KNOW 37
Some valuable tips from Walt Disney, reproduced from the book "The Art of Animation."

A LIGHT UNIT THAT MOUNTS ANYWHERE 38
A simple light unit that takes reflector flood bulbs and may be attached to almost any surface in a set

THE TECHNIQUES OF RAJULO MITSUYAWA 40
Observations of Japan's eminent cinematographer at work by A.C.'s retiring reporter, Cliff Harrington

MARCH OF SCIENCE 41
Reports on two recent developments of importance to motion film manufacture and making of color release prints

FILMING AN OPERATION FOR TV 43
Filming with a hand-held Filma provided unlimited mobility for cameramen for McConkey of KTFH TV, Wichita, Kansas

THE NEED FOR CREATIVITY IN NON-THEATRICAL CINEMATOGRAPHY 45
How imaginative cameramen work various industrial film that win friends and influence people. By Charles Loring

RUSSIA'S CIRCULAR KINOFANDEKAMA 46
Unique system uses eleven cameras for photography and two sets of screens arranged in a circle for projection

*Departments

INDUSTRY NEWS 4
News items of industry activities and progress.

HOLLYWOOD PULPIT BOARD 13
WHAT'S NEW IN EQUIPMENT, ACCESSORIES, SERVICES 14
Things that are new for makers of motion pictures

PHOTOGRAPHIC ASSIGNMENTS—By Merion Hurdina 22
Where and when TV and feature film cameramen were shooting last month.

QUESTIONS & ANSWERS—By Walter Skings, A.S.C.
Reader's questions answered by experts

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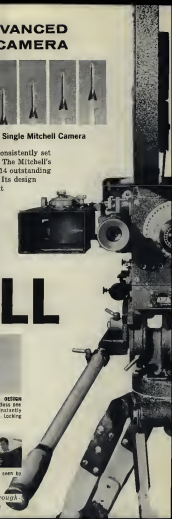
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INDUSTRY NEWS

The World's first 501-TV system, Redifusion, Inc., of Montreal, has developed its own machinery for a coin-box method and may try it in 1964, reports *International Projectionist* in its November, 1959 issue.

"Redifusion," reports IP, "has been overlooked in the general discussion of pay-TV in Canada which the Telemeter project, to begin operation in Toronto at Christmas, has provoked.

"The distinguished features of the two systems is that Redifusion uses a weekly collection method, while Telemeter will rely on the coinbox when it begins its first permanent operation at Etobicoke, Toronto suburb.

"Redifusion, which is also by wire and uses Bell Telephone facilities, has 15,000 subscribers for \$3.75 weekly and represents an investment of about \$5 million to date. Telemeter will open with 4500 subscribers and will be able to service about 13,000 by the end of the winter. Both Redifusion and Telemeter charge a \$5 installation fee. The original Redifusion charges were a \$100 installation fee and \$4.60 weekly. A TV set, property of the company, went with the service. Redifusion subscribers pay monthly.

"The Redifusion customer gets TV channels, radio stations and recorded music, all of which is available on the TV set which comes with the arrangement—along with motion pictures originating in its own studio. At present, Telemeter's programming calls only for movies, but they will be second-run and thus generally newer than those of the Montreal operation. Redifusion now also offers its service to people who own their own sets.

"Redifusion predicts that it will be a 'long-term' proposition, as are most pioneering projects. In 1953 there were 3000 subscribers, now there are 15,000. The annual report of the parent company says that the Montreal subscribers doubled in the last 12 months.

"In the home collection method more precious economically than the coin-box one? This was suggested by Telemeter representatives at its New York

News briefs of
industry activities,
products and progress

demonstration last year. Redifusion denies it," the IP article concludes.

• • •

Arthur Freed, veteran Metro-Goldwyn-Mayer producer and song writer, was named last month to produce the 32nd Annual Academy Awards Presentation Show.

Freed will supervise production of the annual show scheduled for Monday night, April 4. The show will be carried over the combined television and radio facilities of the National Broadcasting Company and the Canadian Broadcasting Company. Freed also produced the 24th Annual Academy Awards Presentation Show in 1952.

• • •

A total of 19 technical achievements have been submitted for 32nd Annual Academy Awards consideration. They are:

Additive Color Printer, Bell & Howell; Cinemascope 55, 20th Century-Fox; 7-Position Portable Mixer, RCA; Exposure Meter, Amco; Instantaneous Color Film Analyzer, Hazeltine Research Corp.

M-G-M Camera 65, M-G-M; Instantaneous Color Film Timer; Technicolor; Automatic Shutter for Motion Picture Printing Machines, Electronic Systems, Inc.; The Easy Editor, Joseph Volo.

Kenpac Stabilizer, Gordon Enterprises; Wet Printing Equipment, Technicolor; Optical Printer for Special Effects and Travelling Matte Shots, Walt Disney Productions; New Lamps for High Speed Cameras, Westinghouse.

Bausch & Lomb Balafold Reflector, Bausch & Lomb; Norok Universal DP 70 70/35mm Motion Picture Projector, North American Philips Co., Inc.; CF-2 Ultrasonic Film Cleaner, Lagoon-South Corporation.

And an Electronic Film Footage Counter, Samuel Goldwyn Productions; Transmitted Film Footage Counter, Wells Engineering; Multiple Endless Cable Remote Controlled Winch, M-G-M.

Continued on Page 10



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INDUSTRY NEWS

Continued from Page 6

The application of digital computer techniques to TV set lighting, as outlined in a paper read before the 86th semi-annual convention of the SMPTE by Donald D. Winton of IT&T's San Fernando (Calif.) Laboratory, has sparked interest among some Hollywood studio lighting engineers for possible use of the technique in some types of film production.

Earlier, Winton had described the digitally-controlled lighting system for television studios as one "whose basic purpose is to relieve the lighting operator of so many routine tasks as possible, yield maximum manual control with minimum effort, and thus allow the board operator time to concentrate on more creative achievements."

The proposed system records the lighting board operator's actions during rehearsals as a by-product of his normal setup procedure. During telecasting the machine assumes the major routine workload while still permitting maximum operator control. Magnetic drum memory and solid state registers are used to effect maximum control. New command information may be distributed to every light in the house in less than one second.

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The system may use a magnetic amplifier type driver, or a silicon-controlled rectifier-type driver, both of which may be built economically by utilizing digital input techniques. It will feature a manual control panel to provide emergency control of the stage should the automatic system become faulty, and a light-finding identifier—a device which allows the operator to interrogate the monitor to determine the light numbers whose rays are falling upon a specific point on the monitor.

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HOLLYWOOD BULLETIN BOARD



GLETT: "The book is cool."

Guest of Honor at the ASC's November dinner-meeting was Charles L. Glett, prominent motion picture and television executive, and an Officer and Director of National Theatre & Television, Inc.

Speaking before the Society's members on the subject of Pay-TV, Mr. Glett reported his findings as expressed to him by those both for and against Pay-TV. He concluded by saying, "In my function as an Officer and Director of NTEI, my time is occupied in areas of diversification which include broadcasting stations and community antenna TV systems, all of which vigorously compete for spectator time and would appear to be diametrically opposite to what many of you represent in the theatrical motion picture industry."

"It is not important at this time," he added, "whether one is for or against Pay-TV. What is important is that the public, which in the final analysis will have to make the final decision, has not yet been heard from."

Guy Roe, ASC, veteran Hollywood cinematographer, died of a heart attack December 12th while on a hunting trip in Northern California. He was 56 and had been directing the photography of TV films for Fox Star Productions at Republic Studios for the past several months.

Arthur Miller, ASC, came out of retirement temporarily last month to direct the photography of a segment of Ed Murrow's "Small World."

TV film series originating in Hollywood and featuring columnist Hedda Hopper. And the accolades that followed for his photographic treatment of Miss Hopper prove what TV needs more than anything else: good lighting and expert photography by veteran Hollywood studio cameramen.



ARTHUR MILLER, ASC

Joseph Rutenberg, ASC, described some of his camera work for MGM's "Wreck Of The Mary Deane" during his guest appearance on the "Lindy Theatre" TV show December 13th.

Joseph Brun, ASC, New York cinematographer who did extensive photography on the first *Guernica* production and has since photographed many feature films on the East Coast, was a Hollywood visitor last month.

Fiora Fontalugi, Italian cinematographer who directed second-unit photography for MGM's "Ben Hur," will hereafter place the initials "ASC" after his name in credit takes. He was elected to active membership in the Society in November.



ENJOYING *Guernica* facilities of the American Society of Cinematographers are Joseph Brun, ASC, left, and Arthur Miller, ASC, here enjoying a game of cards while waiting call to dinner at the Society's November meeting.

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Rapid Spray Film Processor

Houston Fearless Corp., 11805 W. Olympic Blvd., Los Angeles 64, Calif., announces a new automatic rapid spray film processor for 16mm or 35mm B&W, with processing speeds up to 150 feet per minute for positive and up to 100 fpm for negative. Complete processing time for positive films is as short as 5 mins. from dry to dry.

Fast processing time is made possible by high impingement spray application of developing solution, fix and wash. Impingement drying is also employed. Optional is off-line applicator and equipment to give film an archival wash.

Camera Literature

Literature on a new 200 frame-per-second 16mm camera designed for use in missile tracking, testing and for airborne flight data recording is offered by Gordas Enterprises, 5142 No. Calaveras Blvd., North Hollywood, Calif. Literature gives full technical details on the "Contest 200" camera, which measures only 6" in length and $3\frac{1}{2}$ " x $2\frac{1}{2}$ " in height width. Special c50T high speed film magazines are also described in addition to optical and other accessories.

Variable Shutter Feature

Pellegrini-Pink, San Francisco, announces that all installations of their variable shutter units for Bolex-H cameras include a special warning signal for closed shutter position.

Camera Trigger-grip

Owners of Filma 70 and 240TA cameras will be interested in the NCE Trigger-grip handle now available for these cameras from National Cine Equipment Co., 209 West 48th Street

N. Y. 36, N. Y. Contour of handle permits steady support of camera with one hand while depressing trigger that operates camera with the other. Spring-loaded shutter release depresses hook extension over top of the Filma camera to actuate regular starting button. Unit attaches to camera by means of conventional tripod screw. Cast aluminum construction, hosen wrinkle latch. List price, \$29.95.

Quadlite

Mole-Richardson Company, 937 No. Sycamore Ave., Hollywood 38, Calif., announces the Quadlite, a handy, versatile floodlight source utilizing reflector photofloods. Unit is ten inches square and two inches thick and has four recessed receptacles to take the lamps. Unit mounts on a Baby Pedestal and may be tilted in any direction when used with a quadrant furnished as accessory. Provision is also made for stacking by means of stacking-posts. Each lamp socket is controlled by separate switch.

16mm Underwater Blimp

An all-metal underwater housing designed especially for the popular Kodak K-100 camera is announced by Camera Equipment Co., New York, N.Y. Constructed of $\frac{1}{4}$ " anodized dural, it features external controls for camera, viewing ports affording views of footage meter, lens settings, and spring wind. Accommodates camera mounted with a 10mm 1/18 fixed focus Angenieux lens, and provides matching viewfinder. Handles mounted on right front and left rear sides permit operation of camera by photographer in either standing or horizontal position. Capable of withstanding underwater pressure at 35 feet, an accessory pressure valve will extend this range down to 175 feet. Weighing 39 lbs., size is $12\frac{1}{4}$ " x $5\frac{1}{2}$ " x $12\frac{1}{2}$ ".

Audio Tape Splicer

Photographic Industries, Inc., Croton-on-Hudson, N.Y., offer an inexpensive efficient splicing kit for editing and splicing $\frac{1}{4}$ "-in. sound tapes. Kit includes splicing block with cutting blade and supply of color-coded Mylar splicing strips. List price is \$1.95 at most photo and music stores.

Triped Head Conversion

Cinekad Engineering Co., 763 10th Ave., New York 19, N. Y., announces a custom conversion adaptable to the Pro-Jr., F.B. and S.O.S. tripod friction heads which converts them to a spring-balanced type head. Conversion also provides better counter-balanced control when used with any 16mm camera—returning the camera to neutral position when tripod head is released. Two separate compression springs are provided, each accommodating a different camera weight range.

Magnetic Tape/Film Degusser

Magnavox Mfg. Co., Ltd., 5546 Suisuna Ave., Hollywood, Calif., announces a new semi-automatic turntable-type degusser which features a pre-determined 20-second timed cycle. The push-button controlled motor-driven unit insures fast and complete bulk erasure of magnetic films or tapes of all sizes. The Model A-937 is \$159.50. Other models are priced at \$119.50 and \$69.50.



Gyropod

Birm & Sawyer, 6124 Santa Monica Blvd., Hollywood 38, Calif., offer a heavy-duty gimbal action tripod for use in photographing action at sea or on other rough water where a horizon steady camera is essential. Trade-named Gyropod unit will maintain constant horizon in rough seas up to 30° incline. Screw on threaded head adapters accommodate either Mitchell or Pro-Jr. type heads for 16mm cameras. List price is \$945.00.

Lighting Catalogue

Mole-Richardson Co., 937 No. Sycamore, Hollywood 38, Calif., announces a new 44-page catalogue illustrating and describing Mole-Richardson set lighting equipment and accessories. *



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- ★ **LOS ANGELES, CALIF.**
MAY 2-5
Hotel Ambassador
In connection with "NMPPE Convention & Equipment Exhibit"
- ★ **CHICAGO, ILL.**
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In connection with "Professional Photographers of America Trade Show"
- ★ **WASHINGTON, D.C.**
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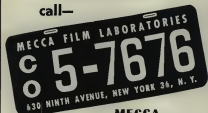


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LITERATURE

Eastman Films

A folder containing a 56-page booklet giving general information on Eastman Motion Picture Films and a packet of individual specification sheets on black-and-white and color films has just been issued by Eastman Kodak Co., Rochester, New York. Both the book and the individual pages are punched to fit the standard Eastman Kodak Data ring binder.

The new booklet differs from previous editions in that the specification sheets for the individual films are printed and supplied separately. List price is \$1.25.

Film Daily Year Book

Off the press in 1959 edition of the Film Daily Year Book of Motion Pictures, which is given without charge to all paid subscribers of Film Daily and sold to non subscribers for \$15.00 per copy.

Volume, which has been issued yearly for over two decades, contains statistical and informative data on the U. S. motion picture industry and related fields. It places at the fingertips of manufacturers, dealers, executives, producers, distributors, and all others interested in the film industry a wealth of valuable information.

Exposure Meter Folder

A new 10-page folder describing the photoelectric exposure and color temperature meters made by the West German Gossen Company is offered free by Kling Photo Corporation, 257 4th Ave., New York 10, N.Y., U.S. distributors for the Gossen meters. Explained in easy-to-understand terms is difference between incident and reflected light readings and the complex makeup of photoelectric meters used in light evaluation.

How To Add Sound

"Magnetic Sound For 16mm Motion Pictures" is new 68-page publication by Eastman Kodak Co., Rochester, N.Y.

Sections in the book discuss basic equipment for making sound films, script preparation, camera techniques when shooting for sound, basic recording techniques, use of microphone, narrating, editing for sound, and obtaining optical prints from magnetic sound films. Fully illustrated with photographs and diagrams, book is available through Kodak dealers. List price is 50¢.

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PHOTOGRAPHIC ASSIGNMENTS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUTCHINS

ALLIED ARTISTS

GEORGE FORMER, ASC, "I Passed for White" with Stevie Nicks and James Franciose. Fred Wilson, director.

LEONARD BALLARD, ASC, "Pay at the Bar" with Ernest Borgnine and John Langan. Richard Wilson, director.

ELAN CARTER, ASC, "Teacher versus Student" (Shooting at El El Ranch, Photography Area) with Marlon Van Doren and Tuesday Weld. Albert Zugsmith, director.

AMERICAN NATIONAL

MYRON ARNOLD, JACK MARQUETTE, RICHARD RAYMOND, "Bad Manhood" (Ziv TV) with Gene Barry.

EDWARD RAYMOND, "The Man and the Challenge" (Ziv TV) with George Nader.

JACK MARQUETTE, "The Man Division" (Ziv TV) with Keith Andes.

RAY FORMER, ASC, MORRIS ARNOLD, JACK MARQUETTE, "Lookout" (Ziv TV) with Michael Gary.

WILLIAM WHITLEY, ASC, "Sex Hunt" (Ziv TV) with Lloyd Bridges, "Men into Space" (Ziv-TV) with Bill Linkages.

CURT FERRIS, "Tomorrow's Tomorrow" (Ziv-TV) with Pat Conway.

CALIFORNIA STUDIOS

SOCIETY PRODUCTIONS, ASC, "Hive Car, Will You?" with Richard Boone and Kim Torg.

PATRY SOUTHGATE, "Gardenia" with James Aronson and Debra Winger.

FRED BENTLEY, "The Legend" with Warner Anderson and Tom Tully.

RAY FORMER, ASC, "Wednesday Industrial Film" (color, Roland Reed Prods.).

WINTON ROCK, ASC, "Industrial Film" (Shooting in Berkeley, Calif., Roland Reed Prods.).

BAL McLENNAN, "Program Parade" (Roland Reed Prods.).

CASCADE PICTURES

KEVINOR BURDELL, ASC, "Commercial"

WILLIAM SHULT, ASC, "Commercial"

COLUMBIA

IRVING LIPKOW, "Manhood" (Screen Gems) with Victor Jay and Patrick McVey. Fred Jackson, director.

CHARLES WILKINS, "Backstage" (Screen Gems) with Michael Cavanaugh.

GARY ANDERSON, ASC, "Dinner Reed Show" (Screen Gems) with Donna Reed. Oscar Rudolph, director.

FRED GATNER, ASC, "Father Knows Best" (Screen Gems) with Robert Young and Jane Wyatt. Peter Donahue, director.

HENRY FREEDER, ASC, "Dinner the Menace" (Screen Gems) with Gloria Henry and Helen Anderson.

PHILIP TAYLOR, ASC, "Man from Blackhawk" (Screen Gems) with Robert Rack-

WILKIE COOPER, "I Am at the Star" (Movieguide Prods., shooting in Germany) with Carl Jungers and Gila Soika. Lee Thompson, director.

DAVID FAY, ASC, "All the Young Men" (Hall Budget Prods.) with Alan Ladd and Sidney Poitier. Hall Bartlett, director.

THOMAS TOWLER, ASC, "World Champion, Day Golf Show" (Screen Gems). Fred Bronke, director.

CHARLES LARUE, ASC, "Strangers When We Meet" (iCscope & Color, Richard Quine Prods.) with Kirk Douglas and Kim Novak. Richard Quine, director.

CORY COVILL, "Surprise Package" (Star Jet Screen Prods., shooting in Europe) with Yul Brynner and Mimi Gynor.

WALTER CASTLE, ASC, "A Good Goodbye: The Story" (Screen Gems) with Gloria Henry and Herbert Anderson.

BRADLEY GATNER, ASC, "Let No Man Write me Epitaph" with Earl Jay and Shirley Kline. Philip Lencow, director.

DELU STUDIOS—Color City

LEONARD ARNOLD, ASC, "U. S. Marshall" (DeLu Prods.) with John Bromfield.

CHARLES BAKER, "Man with a Camera" (DeLu Prods.) with Charles Bronson.

CHARLES VAN ENER, ASC, "Betty Bottom Show" (DeLu Prods.) with Betty Hutton. Richard Karon, director.

HENRY CARROLL, "Good Guy" (DeLu Prods.) with Lyle Reitzler and Harold Stone. Sidney Morte, director.

EDWARD FITZGERALD, ASC, "The Gale Storm Show" (iTC Prods.) with Gale Storm and Zella Pine. James Kern, director.

HARRISON SMITH, "Pure Exposure" (DeLu Prods.) with Turlough. Director.

DELU STUDIOS—Green

KENNETH FRANK, ASC, "Lanie" (Jack Warner Prods.) with Jane Lambert and John Pomeroy.

KENNETH FRANK, ASC, "The Millionaire" (Jack Warner Prods.), James Sheldon, director.

EDMUND HANCOCK, "Whirl Ears" (DeLu Prods.) with Hugh O'Brian.

Faye France, "The Tense" (DeLu Prods.) with Rory Calhoun.

CHARLES STRANDER, "The Unwinnable" (DeLu Prods.) with Robert Stack and Jerry Paris.

BRADLEY POTACE, ASC, "Ann Southern Show" (DeLu Prods.) with Ann Southern.

NICK METERAKA, ASC, "Barbara Stanwyck Theater" (DeLu Prods.) with Barbara Stanwyck.

DELU STUDIOS—Hollywood

RENEE DE GRANGE, ASC, "Daisy Thomas Show" (DeLu Prods.) with Danny Thomas. Sheldon Leonard, director. "Love and Maytag" (DeLu Prods.) George Abbot, director.

LOTTORIE WORTH, ASC, "The Real McCoys" (Brannan-Warner Prods.) with Walter Brennan. Hy Averback, director.

See ECKMAN, ASC, "Ted Sicksen Show" (DeLu Prods.) with Ted Sicksen. Seymour Rabin, director.

DIMMY STUDIOS

HARRY WALDMAN, "The Sides Family Reunion" (Production & Tech., Bronx Vega release) shooting in E. W. I. with John Mills and Dorothy McGuire. Ken Annakin, director.

CORINUS AYLL, ASC, "Colorado River" (W. L. H. Studios), director.

FOX WESTERN AVENUE

JAMES VAN TRIN, ASC, "The Many Loves of Debbie Gilfe" with Deanne Helman. Ted Amundson, director.

LEONARD BALLARD, ASC, "The Boy and the Pirates" (Hudson color, U.A. release) with South Gordon and Charles Herbert. Bert L. Gordon, director.

GENERAL SERVICE

RANDY LUTHEIN, ASC, "Adventures of Ours & Martin" (Stage 5 Prods.) with Ours, Martin, David and Ricky Nelson. Ours Nelson, director.

FRANK ROSSMAN, ASC, "Perry Mason" (CBS TV) with Raymond Burr and Barbara Hale.

MARGARET NICHOLSON, "Bender Patrol" (Cello) with Richard Webb, John Hayes, director.

AL MOYER, ASC, "Commercials" (Filmsweeps Prods.)

HARRY WOLF, "Hemlock" (Hemlock Prods.) with Julie Cooper.

GOLDWIN STUDIOS

NORMAN SWANSON, ASC, EDNA POITTO, "Loretta Young Show" (Lewiston Prods.) with Loretta Young.

INDEPENDENT

JOHN ALTON, "Elmer Gantry" (Eastman color, Elmer Gantry Prods. for U.A. release) with Paul Newman and Jean Simmons. Richard Brooks, director.

WILLIAM CLAYTON, "Alamo" (Feldman; Prods. for U.A., shooting in Texas) with John Wayne and Richard Widmark. John Wayne, director.

EDMUND LUTHEIN, ASC, "Inhere the Wind" (Shirley Kanner Prods. for U.A. release) with Shirley Kanner and Florence Eldridge. Shirley Kanner, director.

JOSEPH L. SULLIVAN, ASC, "The Apartment" (Mirisch Co. for U.A., shooting in N.Y.) with Jack Lemmon and Shirley MacLaine. Billy Wilder, director.

GARY REISCHER, ASC, "The World by Night" (Jeri Films, Kasey, Inc., Technicolor) Gary Reischer, director.

NETWET STUDIOS

WALTER STEINER, ASC, Series of religious films (Family Films). Edward Dow, director.

METRO-GOLDWYN-MAYNE

DALE DINTERMAN, "One Step Beyond" with John Newland.

WILLIAM MARSHALL, "Not for Hire" (Columbia National Prods.) with Ralph Meeker. "Philip Marlow" (Jack Chertok Prods.) with Phil Croy.

WILLIAM STEINER, "Folies McGee and Mail" (NBC TV) with Bob Deery and Coby Lewis.

THE McCORMACK, ASC, "Adventures of Buckleberry Farm" (iCscope & Metrocolor, Samuel Goldwyn, Jr. Prods.) with Tony Randall and Eddie Hodges. Michael Curtiz, director.

MILTON KAMEN, ASC, "Bells are Ringing" (iCscope & Metrocolor, Arthur Freed Prods.) with Jack Lemmon and Dean Martin. Vincente Minnelli, director.

Continued on Page 24

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F. & E. Fromm Mfg. Machinery can be expected to keep their attention to price practically all summer, according to the firm. All the business listed was considerably guaranteed by F. & E. The Fromm Mfg. plant continues healthy in comparatively quiet season, he says (see 10/1/22).

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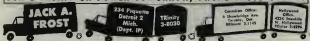
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PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 22

MITSU-GOISWITH-HAYES

GEORGE RICHMOND, "The Fair Bride" (T-teen Prod., shooting in N.Y. with Ava Gardner and Dirk Bogarde. Naturally Johnson, director).

JERRY NICHOLSON, "Backbit" (CBS-TV) with Eric Fleming and Chet Eastwood.

WILLIAM DANIELS, ASC, "All the Fine Young Cannibals" with Robert Wagner and Natalie Wood. Michael Anderson, director.

ROBERT SENTER, ASC, "Columbus" with Gloria Ford and Maria Schell. Anthony Mann, director.

N.B.C.

ALAN STENFOLD, ASC, "You and Your Life" with Geraldine Barr. Bob Drew and Beebe Smith, directors.

PARAMOUNT

LOUIS SOROKA, ASC, "Bananas" (NBC-TV) with Michael Landon and Don Blocker.

ROBERT EBERN, ASC, "The Rat Patrol" (Teleshoot: Foxburg-Stanton Prod.) with Tapp Carlin and Debbie Reynolds. Robert Mulligan, director.

HAROLD BOASE, "Gladys" (Teleshoot: Jerry Lewis Prod.) with Jerry Lewis and Ed Wynn. Frank Tashler, director.

JOHN RUSSELL, ASC, "Peech" (Alfred Hitchcock Prod.) with Anthony Perkins and Vera Miles. Alfred Hitchcock, director.

REPUBLIC STUDIOS

GEORGE DEKANT, ASC, "Richard (Starring Private Detective)" (Fair Star Prod.) with David Janssen.

EMMETT DUNDELL, "Tomb Raider" (Ft. Warner Prod.) with Kenneth Wynn and Bob Michael. Robert Aldrich, director. "Death Valley Days".

HOWARD SCHWARTZ, "Law of the Pleasure" (Four Star Prod.) with Michael Ansara; "The Effendi" (Four Star Prod.) with Chuck Connors and Johnny Crawford.

REMY WILK, ASC, "Commericals".

HARRY WISE, ASC, "Wanted Dead or Alive" (Four Star Prod.) with Sam McQuinn.

CARL GOTTFRED, ASC, "Johnny Ringo" (Four Star Prod.) with Don DeLia.

SEVTE STUDIOS

MAKÉ SHONKEL, ASC, "Leave It to Beaver" (Geminco Prod.) with Barbara Billingsley and Hugh Beaumont. Norman Toller, director. commercial.

BERT KINGS, ASC, NEAL BECKER, "Wagon Train" (Revue Prod.) with Ward Bond.

WILLIAM SOKRYN, ASC, "The Deputy" (Revue Prod.) with Henry Fonda.

WILLIAM SOKRYN, ASC, RAY REYNOLDS, ASC, "Laramie" (Revue Prod.).

ERIC HANKE, NEAL BECKER, "Riviera" (Revue Prod.) with Darren McGavin.

JOHN WARDEN, ASC, NEAL BECKER, "M Squad" (Laurier Prod.) with Lee Marvin.

NEAL BECKER, "Designing Rebel" (Revue Prod.).

LINNEY LINDEN, ASC, "Ransom" (Revue Prod.); "Bachelor Father" (Bachelor Prod.) with John Forsythe.

JOHN WARDEN, ASC, "Alfred Hitchcock Presents" (Revue Prod.); "Mannix" (Revue Prod.) with John Forsythe.

GUSTAV WASSERMAN, ASC, "Webb Fargo" (Overland Prod.) with Dale Robertson.

LUCK MACKEON, ASC, "Overland Trail" (Revue Prod.).

REYNOLD WINTER, ASC, "Faster in Black" (Color: Universal International) with Lana Turner and Anthony Quinn. Michael Gooden, director.

THIRTIETH CENTURY-FOX

WILLIAM CLINE, ASC, "Five Fingers" with David Hedison and Lili Fini Zanuck.

WILLIAM HILLMAN, ASC, "Chick in the Nit" (C-Scope, Intertel, E. Zerk Prod.) with Olan Wallace and Reed DeRango. Richard Fleischer, director.

ELDON FORTNEY, ASC, "Wild Fire" (C-Scope & Color, shooting in Tennessee) with Montgomery Clift and Lee Remick. Elia Kazan, director.

LEON SHARBER, ASC, "Wake Me When It's Over" (C-Scope & Color, Meridian LeRoy Prod.) with Erna Krone, Dick Shawn and Nappi Brown. Mervyn LeRoy, director.

CARL BECKER, ASC, "Young Man Jones" (C-Scope) with Ray Stricklyn and Willard Parker. William Claxton, director.

Continued on Page 40



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WALTER STRENGE'S

QUESTIONS & ANSWERS

Need advice on a picture making problem? Your questions are invited and will be answered by mail. Questions and answers considered of general interest will appear in this column each month.



Q I wish to produce the effect on the screen of a scene as viewed through a pair of binoculars. How can this be achieved?—R. R. F.

Answer: If you are shooting with one of the professional cameras, purchase a binocular matte and place it in the camera when photographing the scene. The effect of the binocular masking can also be produced when the film is printed, by a laboratory equipped to do special optical effects.

Q How can I produce moving images in multiple within a single film frame, all visible at the same time and changing positions on the screen?—R. W. S.

Answer: The special effect you describe is difficult to produce satisfactory without the aid of an optical printer. As we understand it, you want three different objects to appear simultaneously on the screen but changing positions in a revolving motion. To achieve such an effect, it is necessary to shoot each object separately, then have them combined in the effect you desire by a laboratory equipped with an optical printer.

There is an optical effects gadget available from Camera Equipment Co., New York, which is attached to the camera lens and rotated to achieve an effect similar to that you describe, but only with a single object. Of course, using this same device, you could produce an effect similar to one you desire simply by double- and triple-exposing the various objects, one after the other.

Q When photographing stage windows displays with Kodachrome recently, the camera picked up my own image reflected in the glass, which did not seem apparent when I was shooting. How can this be avoided?—A. C.

Answer: Set your camera at an angle to the window instead of pointing it straight on—at about 35°. Other unwanted reflections, such as passing cars, pedestrians, etc., can be minimized by using a Polar screen in front of your lens.

Q Is a color temperature meter essential to good cinematography for films industrial productions?—R. S.

Answer: In black-and-white photography, three measurements are necessary to assure a good negative: 1) illumination, 2) lighting contrast, and 3) brightness ratio. In color photography one more measurement should be taken—that of color temperature in Kelvin degrees.

It is noted from your question that you are shooting films industrial productions and it is presumed that you make prints from the original. Small differences in color temperature can be taken care of in the processing laboratory. Big differences, however, should be corrected before you start to shoot. A good color temperature meter is just as essential as an exposure meter when shooting color films.

Q How does the professional combine cartoon action with live action? The effect I want to make is where the animated character performs in front of live-action background with live actors, without being transparent in any way.—J. H. McK.

Answer: Live action and cartoon animation may be combined by several different methods. A traveling matte of the animation can be produced by photographing the cartoon cells in silhouette by using backlight. The cartoon detail image is then photographed over a black background on a separate negative. Suitable register marks are made from these negatives and combined with the live action—usually with an optical printer—although contact printers are sometimes used. The silhouette image film is hi-packed with the live-action positive and exposed to the dupo negative. The cartoon detail image over black is then exposed into the area left unexposed by the silhouette matte.

Another method, which eliminates the need for a film matte, uses a system of printing in the camera. Here the live-action master is hi-packed in the camera with the dupo-negative and exposed to the cartoon cells in silhouette by backlight. The live-action

Continued on Page 26

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QUESTIONS & ANSWERS

Continued from Page 28

is thus printed, leaving an unexposed area of the cartoon figure. Removing the live-action master and exposing in the detail cartoon action over a black background completes the process.

Still another and simpler system employs peacock projection. Here the animation cels are placed over a black peacock screen on which the live-action is projected from the rear. The composite image is photographed in one operation. Although results are usually not quite as good as that obtained by the mating process, it is simpler, faster, and more economical. Because of the close registration re-

quired between the several elements being combined, it is of prime importance that precise, solid equipment and a register-pin camera be used. Otherwise, mis-register or wavy images will result. It is also important that the same register-pin geometry be used throughout the photography and printing steps.

Q When shooting Kodachrome out of doors, should a CC filter be used in addition to the Wratten No. 83 filter to balance color when shooting early in the morning or late afternoon? Can one be of gelatin and the other glass—S. J. M.

Answer: Purpose of the No. 83 filter is to convert daylight to the proper

color temperature for Kodachrome. When shooting from morning to late afternoon, color temperature of daylight changes progressively. Therefore, to obtain optimum color rendition in your photography at all times, it would be necessary to take color temperature readings of the daylight at intervals, as well as exposure readings; then, with the proper filters, make the necessary corrections of the light to effect consistent results.

As regards the filters, both glass and gelatin filters give good results, and the two types can be used together with success. Glass filters should be optically ground to insure definition of image.

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Page 5444



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Page 31342



TABLE 1. Continued

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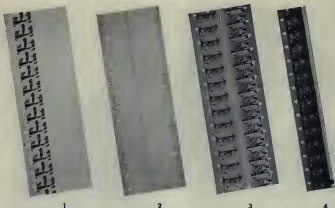
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EVOLUTION OF A 16mm black-and-white and sound print made by the 35/32mm printing method. The first film is the 35/32mm picture negative; 2 is 35/32mm sound negative; and 3, 35/32mm double composite print. Strip No. 4 is the completed 16mm print after being

split and trimmed from the 35/32mm film stock. The method results in better print quality and sound tracks having improved frequency response. (Although films illustrated are not all related, they are typical examples and demonstrate the process.)

WHY THE 35/32MM METHOD RESULTS IN BETTER 16MM PRINTS

Film laboratories have discovered it is more economical and productive of better prints to process two 16mm images side-by-side on a single 35mm film in one operation.

ONE OF THE IMPORTANT economies effected in the production of 16mm films for television and other professional uses is credited to the 35/32mm printing method, by which 35mm film perforated with standard 16mm sprocket holes permits two 16mm prints to be made simultaneously, side by side, split from the center of the 35mm width after the latter is trimmed to 32mm in width.

Although the 35/32mm method is now in general use by many of the commercial film laboratories in the U. S., it was first used on a large scale commercially at General Film Laboratories in Hollywood. General's Vice-President William E. Gephart explained the method in detail in a

paper presented before members of the S.M.P.T.E. at the Society's convention in October, 1956, at Los Angeles.

The method utilizes 35/32mm films in the various processing and printing steps. Special printing machines are required, but otherwise, assembly, cleaning and developing of the 35/32mm prints are accomplished on normal 35mm equipment.

"The method is practical," points out Gephart, "since most of the original negatives for today's TV and other commercial 16mm films are 35mm, and most of the professional laboratory equipment in use today was designed to print or process film in 35mm width."

According to General Film Laboratories Corp., the method of printing on 35/32mm film results in denser 16mm prints, better sound quality, and sharper picture reproduction than where prints are made directly on 16mm negative film. Equally important is the economy of producing two prints in a single operation.

While slitting the 35/32mm film into two 16mm strips is an added operation, it doesn't begin to eat up the economy of processing two 16mm prints at one time. But the slitting operation and especially the trimming of the delicate 15/16mm strips on each edge of the 35/32mm film (to reduce it to 32mm in width) is perhaps the most precise and the one that is supervised more closely than all the others.

When the 35/32mm printing method was first introduced, motion picture engineers doubted the accuracy with which the edge trimming operation could be performed by the film laboratories and cited that irregular trimming would produce "noise" of the image on the screen during projection.

General's engineers assert they licked the problem by designing and building their own precision film splitter. The dimensional stability of the 16mm prints emerging from General's splitter is said to be well within ASA standards. The slitting operation is checked several times daily by examining samples of slit film on an optical comparator for placement, wears, and smoothness of edges, and the same specimens are then checked a second time by actual projection at normal 16mm speed.

In Gephart's paper (which was published in its entirety in the March, 1957, *Journal of the SMPTE*) it is pointed out that the 35/32mm method has a decided advantage over other procedures in that it can be handled on normal 35mm nonspocket-drive developing machines along with other 35mm material. It also benefits from the good solutions control and mechanical maintenance normally practiced on these machines. Moreover, the paper points out, the extra 15/16mm existing on the 35/32mm film throughout the processing gives roller support, edge guiding, and protection to the finished product. Roller marks, rough edges, abrasions and dirt that might get into the picture area are trimmed off and discarded, thus presenting a new smooth edge. The sound tracks, being in the center of the 35/32mm film, have complete protection.

The usual method of producing 16mm black-and-white prints by the 35/32mm method is to make a 35mm film-strip duplicating positive by contact printing from the original 35mm negative. From this a dupe negative is made by optical reduction on 35/32mm film. This negative may consist of a single 16mm reduction or a double-row of two 16mm images side by side. Sometimes the twin images are duplicates while at other times they are each different so that two different productions are printed and processed in one operation.

The dupe negative is then contact-printed to 35/32mm positive, composite with the sound negative, and the print then slit and trimmed to produce two 16mm prints.

The method is equally flexible for making 16mm color prints from 35mm color negatives. Here there is a choice of three methods, all utilizing the various color film stocks available from Eastman Kodak Company:

1) making a 35mm color interpositive on EK 5253 from the original 35mm color negative, then making a reduction 35/32mm color internegative Type 7253. Contact prints are then made on 35/32mm Type 7323 color print film. In

contact-printing the sound track, 35/32mm sound negative is used.

2) 16mm color prints can also be made on 35/32mm color positive by reduction printing from the original 35mm color negative.

3) by making a 35/32mm internegative on Eastman Color Intermegative Film, Type 7270. This may be done either by reduction printing from a 35mm color print or by contact printing from a 16mm Kodachrome print. Following this, a direct contact print is then made on 35/32mm color positive which is subsequently slit and trimmed to produce two 16mm prints.

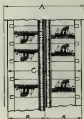
One of the advantages of the 35/32mm printing method cited by Gephart is that the printing negatives wear exceedingly well, having on the average a much longer life than a 16mm dupe negative.

"Negatives made on 35/32mm film," Gephart said, "stand the wear and handling of multiple printing much better than 16mm negatives, due to the added width of the film providing support to the sprocket holes. Where required, we can easily obtain a minimum of 200 good 16mm prints from a 35/32mm negative."

So extensive has the use of 35/32mm film become, that it now is generally available from both Eastman Kodak Company and DuPont, already perforated. It is not a "special order" film requiring any period of delay for production and shipment.

Following adoption of the 35/32mm method of printing by General Film Laboratories Corp., the company's research engineers kept a two-year record showing results of making 16mm release prints on 16mm raw stock, compared to making them on 35/32mm raw stock—both in the same laboratory and under similar conditions. The results, without question, favored the 35/32mm method, which reduced the number of rejected prints in inspection by 50%, lowered processing costs, and resulted in better sound tracks that showed improved frequency response by 1 to 2 db at 5000 cycles.

HERE IS SHOWN graphically the relationship of the two 16mm films with the 35mm film stock on which they are printed in duplicate. A indicates full width of the 35/32mm film, which with regular 35mm film occurs for perforations. The 21mm width (two 16mm widths) is shown at B, and a single 16mm film width at C. 15mm is trimmed from either side of the 35/32mm stock at time of slitting. (Illustration courtesy of Journal of the SMPTE.)





Product report on the

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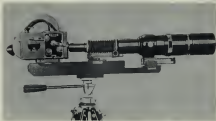
many professional 16mm cinematographers.

Although Pathe is one of the oldest and respected names in motion picture equipment the company unfortunately has never made much progress in mer-

NEW, IMPROVED Pathe 16mm camera, Model Webo M, is attractively designed and is equipped with such professional features as reflex through-the-lens viewfinder, variable 180° shutter, and 3-lens turret.

chandising this attractive and serviceable camera in this country. But it could easily become what is known in the vernacular of Hollywood as a "stepper," for its two principal features—continuous through-the-lens viewing and variable shutter—have attained the stature of essentials in many fields of professional 16mm film production. Add to this the Pathe's compact design and its remarkable light weight—only 7 pounds—and you can see what a handy camera it could be for TV news-reel men, instant film producers, and for filming in remote and difficult locations where a tidy, lightweight package of equipment would make the going easier.

Externally the Pathe 16 has considerable eye appeal. (We shall dispense here with the manufacturer's appendage of "Webo M" and shall refer to the camera simply as the "Pathe 16"). The durable grey hammer-tone enamel finish is accented with trim and fittings in black and chrome. The camera's plunger-type stop and start button is forward on top of the main case and has a rotating collar which—acting as



TYPICAL OF the Pathe 16's adaptability is this application for high-magnification cinematography with aid of extension tube and telephoto lens mounted with camera on adjustable cradle.



THE PATHE 16 equipped with electric motor drive and professional accessories with two cameras.

a sort of a gear-shift — controls the type of camera operation. The collar has four different positions: "O," the security position which locks the starting button and precludes any possibility of starting accidentally; "C," for continuous filming (when button is depressed); "I," for single-frame exposures; and "B," a unique single-exposure release for producing time exposures on one frame. The film is exposed as long as the operator holds his finger on the starting knob. In addition, the top of the starting button is drilled and threaded to take a standard cable release—a desirable feature for operating the camera unobtrusively or by remote control.

Crank for winding the spring motor is permanently spring-fixed to the camera and the winding operation features an audible signal which sounds as soon as the spring is almost fully wound as a protection against over-winding and consequent possible damage to spring. When fully wound, the spring motor affords a continuous run of 22 feet of film.

Both a film footage counter and a film frames counter are provided on the right hand side of the camera. Calibrated from 0 to 100, the film footage counter indicates the amount of film remaining unexposed. The frame counter, which is non-resettable, registers frames exposed (or wound back) in increments of 5, from 0 to 100.

The frame counter plus the hand crank combine to afford a wide range of trick photography effects and making of lap-dissolves. One complete turn of the crank, either forward or backward, moves 8 frames of film past the aperture in either direction. After fading out a scene by means of the variable shutter control, the film may be wound back in the camera the desired number of frames by means of the hand crank to put the film in position for the fade-in necessary for the dissolve effect. Backwinding the film to the precise re-start mark is facilitated by the frame counter, which counts frames forward or backward.

A range of six camera speeds is provided, ranging from 8 to 16, 24, 32, 64 and 80 frames per second. A raised dial on right-hand side of camera is conveniently located where switching from one speed to another is easily accomplished and the dial setting locked by turning a small thumb-screw adjacent to it.

The camera's variable shutter con-

Continued on Page 58

what every young animator should know

(Illustrated by permission from Walt Disney—*The Art Of Animation*.) by Bob Thomas, and published by Simon & Schuster, Inc.)

EACH YEAR, young artists from all over the United States and many far sign countries come to the Disney Studio to apply for work. Some are hired, since new talent is the lifeblood of the art of animation.

What does the studio look for? Artists who can present expressive life drawings, imaginative pencil sketches, pen-and-ink drawings of animals, sub-street designs, fashion sketches, even comic strips. Landscapes are not important, since animators deal in things that move. Nor is color or shading important, since animators work in black and white and in line.

Here is what the studio hopes to find in applicants:

1. Good draftsmanship — animation requires good basic drawing.
2. Ability to be prolific—drawing must come easily.
3. Aptitude for technical perfection—care in details is important.
4. Sense of caricature—that's the nature of animation.
5. Sense of discernment — taste is all-important.

Usually it takes at least ten years to rise to the position of top animator. Some make it faster. Some never make it at all. But even those who have reached the top seldom lose their determination to learn more about their medium.

For example, we find Frank Thomas, who keeps pinned beside his drawing board some of Fred Moore's classic sketches of the "The Three Little Pigs." Why?

"Because I like to glance at them now and then and remind myself of the essential nature of animation," he explains. "The Pigs were examples of extreme simplicity in design, which is what we should strive to achieve."

"Fred Moore used to keep a sign by his desk that said 'APPEAL.' That's what he always aimed for. It doesn't matter how cute, funny or amusing an animated figure is; it is ineffective if it lacks appeal."



"Appeal is just one of the many things that an animator must think of," Thomas remarks. He sometimes makes a list of other factors in order to remind himself of them. Among them:

Is this the most interesting way to do the scene? Will anyone want to look at it?

Is this the most entertaining way to do the scene?

Remember that interesting action is not entertaining when done by unappealing characters.

Are you in character? Is this something no other character would do?

Are you advancing character? Is there some other more interesting way that you could be in character?

Is this the simplest statement you can make of the idea? Have you simplified the idea so there is only one thing to put over? (Simplification is a particular talent of Walt Disney.)

Is the story point clear? Are you putting over the point of the scene?

How about staging? Are you really putting over what you want the audience to see?

Does your main action enhance secondary actions—expressions, gestures, etc.? If they fight each other, neither will be effective.

Are you presenting your idea in terms of what will work best in this medium? Remember that your drawings will be copied by three or four other artists before they reach the screen. Can they retain the spirit of your original?

Do you have a two-dimensional char-

Continued on Page 54



JESSE HIRSCHFELD, M.P.O. cameraman (center), and chief electrician Herman Lough put finishing touches on lighting a feature actress, using Lowel-lights to augment heavier lighting units. Three Lowel-lights have been mounted on walls with Gaffer Tapes to provide back-

lighting, one is clamped to a nearby stand, another on a stand, and a third is attached to walls here. The lamp's novel mounting features make it adaptable to almost any location or sound stage use.

A Light Unit That Mounts Anywhere

You can stick or clamp it to almost any surface or object; use it with reflector-floods to light small sets and location interiors or to augment larger set lighting units.

By FREDERICK FOSTER

MOtion Picture Crews have always had at their disposal an impressive array of set lighting equipment. Most of this equipment, however, has consisted of bulky units taking high-wattage lamps. The ultimate development of lighter and smaller units was inevitable in these days of increased location shooting and the tendency to

limit time allowed gaffers to rig the lights on sets. Moreover, smaller units are more compatible with the lesser light volume requirements of the new fast films—especially when used with the small and efficient reflector-flood bulbs.

The most recent and noteworthy development in this direction is the

Lowel-Light, which combines a method for directly mounting lights on walls, window frames, beams, etc.; a newly-devised notch-and-chain clamp for quick, sure fastening of the unit to pipes, doors, furniture, etc.; and extreme compactness. The Lowel-Light is roughly one-fourth the size of existing professional lighting units.

Designed by Ross Lowell, a professional cinematographer, the lamp unit was first thoroughly location-tested before being placed on the market. In the few months that it has become commercially available, the Lowell-Light has proved an extremely useful and often indispensable tool for professional film production.

Accompanying photos show the Lowell-Light in closeup and in actual use on a set. It's simple but rugged. Supporting the swivel, adjusting-arms and sockets is a flat aluminum plate having a smooth non-abrasive surface on both sides to prevent marring of furniture or other wood finishes. As illustrated, the unit may be attached quickly to almost any vertical smooth surface with the use of strips of durable adhesive Gaffer-Tape. The latter material is about 2" in width, has an aluminum point finish, and will securely hold a Lowell-Light on surfaces of plaster, wood, metal, hard-surface brick, smooth concrete, glass, tile, etc. The tape may be used without danger of marring on almost any smooth, flat surface except wall-paper, such or porous wallboard, or surfaces having old paint that is flaking off.

The unit's tape-mounting feature makes it invaluable as a light source for top and back-lighting, where time or equipment limitations prohibit elaborate rigging, or where smooth walls offer nothing on which to hang or clamp light units of other types.

An alternative method, entirely new, for mounting the Lowell-Light on sets or walls of location interiors consists of a notch-and-chain clamp for securing the unit to pipes, stanchions, furniture, etc. (See photo.) The notch part of this feature is designed to afford mounting the unit on plane surfaces such as shelves, tin doors, venetian blinds, etc. The chain may be used in countless ways to secure the unit to large pipes, overhead fixtures and perforated surfaces. The plate of the unit serves as a supporting base when mounted on flat surfaces with tape, as described earlier, and can also be wedged between objects such as moldings, desk drawers, etc., thus making it adaptable to almost any lighting situation.

Swivel of the Lowell-Light was designed to provide complete directional control of the lamp. The tension adjustment provides the extra leverage the unit requires when lamps used with it are burdened with the addi-



METHOD of mounting Lowell-Light to wall with Gaffer-Tape is demonstrated by electrician World Lohow on set for "Hired City" TV series photographed by Boris Capron.



HERE IS SHOWN tape-mounting method used by set electrician in photo at top of page.



SHOWING notch-and-chain mounting feature, permitting lamp to be mounted on pipes, etc.

tional weight of barn doors or the lamp bulb itself is larger than the conventional reflector-dood. The necessary adjustment, in such cases, is accomplished through tightening a nut that is readily accessible—even after the light is positioned.

A feature is the best-insulated finger grips that permit the user to adjust the direction of the lamp without suffering burned fingers. The Lowell-Light takes reflector-dood lamps ranging from 75 to 500 watts in size. Its

structure against sudden lamp failure due to poor electrical contact is provided in the porcelain socket which is fitted with a special spring under the center contact point, ensuring good contact with bulb at all times.

The metal parts of the Lowell-Light are made mostly of aluminum which affords minimum weight, maximum corrosion-resistance, and good heat dissipation.

Lowell-Lights can be used with bulbs

Continued on Page 40



KAZUO MIYAGAWA, Japanese cinematographer (right), waits for help measurement before setting lens for love scene for "Kagi," a Daisai production, starring Atsuko Ito.

The Techniques Of Kazuo Miyagawa

Observations of Japan's eminent
cinematographer at work.

By CLIFFORD V. HAERINGTON



NAMING THE MOST skillful cinematographer of a country often is a difficult task. In Japan the job has been simplified somewhat by the international reputation which has been earned by Kazuo Miyagawa.

Miyagawa was responsible for the photography of Japan's most famous films, "Rashomon" and "Ugetsu." More recently he has done equally fine camera work on "Kagi," which is destined for world wide distribution, and "Enjo," Japan's entry in the 1959 Venice Film Festival.

Donald Richie, co-author of the book, "The Japanese Film," said of the photography in the latter picture: "Miyagawa used widescreen as it has seldom been used before, or after, capturing in black and white texture and surfaces so perfectly that the screen at times almost resembled a bas-relief."

Part of Miyagawa's endurance can be attributed to his versatility. The Japanese photographer regularly handles with equal facility and skill, black-and-white or color assignments, in standard or widescreen format, involving historical or modern day screenplays.

While visiting Miyagawa at Daisai's Tokyo studios, we were somewhat surprised to learn that he prefers to shoot in black-and-white in the standard format despite the fact some of his recent successes have been in color and widescreen. He carries his preference for the old "3-by-4" format into his widescreen work, using his company's Daisai-scope widescreen system as if he were employing the standard aspect ratio.

In explanation he pointed out that the rooms in Japanese houses and buildings often are small. When they are reproduced on the sound stages there is little chance to compose pictorially for the full widescreen. As a result, Miyagawa has developed a unique system of sectional use of the picture's width to overcome this problem.

In this approach he leaves large sections of the frame shrouded in darkness, but at the same time with artful lighting cleverly guides the eye of the viewer to the area in which the director has placed his center of interest.

In one sequence of "Kagi" the action is seen through an open door at one side of the frame. The rest of the screen is barely illuminated. The viewer receives the impression that he is eavesdropping on the characters, an effect extremely desirable at this point in the plot.

The story of "Kagi" lays bare the secdid emotions of an elderly man. Miyagawa achieved a forceful visualization of this theme by reducing the colors to tones approximating those of black and white. In many scenes there are strong

MIYAGAWA directs placement of lights for a scene for "Kagi." Scene reveals typical style of mood lighting employed by this Japanese cinematographer.

Highlights and deep shadows not often seen in color productions, but in this case they further enhance the story.

In one sequence the old man's doctor tells him that he is in danger of becoming seriously ill. Miyagawa's key-lights come through the opaque panels of sliding doors at one side of the room, illuminating the old man's face, but leaving the doctor's features hidden in shadow. Thus the viewer's eye is riveted to the expressions of the man as he hears the disturbing news.

This sequence, among others, reveals Miyagawa's penchant for realistic lighting. The particular setup described above was drawn from the Japanese cameraman's memories of the dark rooms of his childhood home.

In "Eiji," the moving story of a young student who sets fire to the famed Golden Pavilion in Kyoto, Miyagawa's camera in glass a heavy burden. The picture's effectiveness depends largely upon the great force with which he depicted the emotions behind the young man's actions.

An especially tense sequence shows the youth and his mother talking heatedly in an underground air raid shelter. The only light source is an open door. Miyagawa shot the action as silhouette, forcing viewers' eyes toward the stark outlines of the actors' faces. Some photographers might have used fill lights here and destroyed much of the dramatic impact.

Despite Miyagawa's success in modern day films, his first love is the historical costume play which brought him international fame.

"These pictures I believe came close to giving a true impression of the real Japan," he said.

"Rashomon" and "Ugetsu" long will be remembered and studied for their exotic photography which played a major part in both films' success outside Japan.

Miyagawa revealed a secret of sorts when he stated he did not filter heavily the misty, dream-like settings used for these two pictures. Although he uses filters frequently on many assignments, he photographed the locations for "Rashomon" and "Ugetsu" almost as he found them.

Large portions of Japan's costume dramas are filmed on location in the Kyoto area, which is rich in natural and man-made beauty. Miyagawa has drawn much inspiration for his camera work from these scenic spots.

Daiei and other Japanese film companies maintain sound stages in the ancient city to take advantage of the surrounding pictorial beauty. Half of Daiei's annual product is said to be made there, and so Miyagawa is kept hopping between Tokyo and Kyoto as his assignments change from the modern to the historical.

In these Japanese studios, Miyagawa works under conditions which are different from those usually found in Hollywood. Not to him and his fellow Japanese directors of photography they are the norm.

As we watched him at work on the set, we observed that Miyagawa had the help of four assistants. Nevertheless, when the time arrived to do the actual shooting, he operated the camera himself. Here many directors of photography will not trust the framing of their pictures to anyone but themselves.

Although Miyagawa had fewer set lights to work with than do most Hollywood cameramen, he still had more than many Japanese photographers have at their disposal on lesser productions.

He shoots his black-and-white films at about 250 foot-candles on Fuji stock, which he rates at 120 ASA. For

Continued on Page 38

MARCH OF SCIENCE

• Importance of rare-earth glasses in modern camera lens design.

• New automatic color control monitor promises improved color prints for motion pictures and TV.

By ARTHUR ROWAN

THE IMPORTANCE of rare-earth glasses in modern camera lens design is the subject of a feature article in the December, 1959, issue of *Camera News of West Germany*, industry tradepaper.

Actually, the story of the success of West German optical glasses is the story of Schott & Co., virtually the exclusive supplier of German industry, and one of the two original enterprises of the Carl Zeiss Foundation. The firm has been a pioneer in the production of new optical glasses since 1834, when it was founded by Dr. Otto Schott. It began operation with a staff of 6 and grew until, in 1939, the company employed about 3,000 people.

In 1945, 41 specialists were evacuated by the U.S. Army from Jena. The Jena plant was partly dismantled the following year and was later seized by the East German government and turned into a "people-owned" enterprise. There is no connection between the present Jena plant and Schott of Mainz and only the Mainz firm can use the old trademarks.

Schott began producing optical glass again in June, 1946, in a subsidiary company located at Zeissel in the Bavarian Forest. The following year other branches of glass production were added at Zeissel and also at Mirreisch, in Bavaria.

Index of Refraction.

Optical glass is catalogued according to an index of refraction (nd value), a number that measures the power of glass to bend light rays, and a value of dispersion (V), a number that measures the inherent property of glass to bend light of different colors to different extents. Schott has the largest assortment of optical glasses in the world.

Continued on Page 32



NEW AUTOMATIC color control monitor, the Seno-GAR-chroma, is electronic meter device that responds both in color and in its intensity, providing instantaneous continuous analysis and control of color. Its application in the production of color prints for motion pictures is now undergoing extensive experimentation.

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ENM 70 numbers 70MM film every 16 frames. (Equipped with an 80 tooth sprocket with five perforations per frame)

Machine can edge number rolls up to 3000'

Friction devices control the payout reel. A torque motor allows the film to be taken up evenly and smoothly. An adjustment knob for the torque motor rheostat permits quick adjustment to take up 1000, 2000, and 3000 foot reels

The impression roller is free wheeling and self-adjusts itself to give a most legible number without the danger of embossing. A simplified inking system with an eccentric center roller in the ink well provides quick alignment for the applicator sponge rubber roller. A doctor knife in the inkwell removes all surplus ink from the inking rollers

There is a simple adjustment for dispensing the amount of ink required. The unit has a small brush wheel to clean the numbering element after the number is applied

A main switch cuts the power when a roll of film is completed.

A feeder foot counter checks the film footage.

A keeper holds the film in place for sync mark and spot coding

The handle in foot permits the operator to manually turn the numbering block to the desired position for a number change

Running speed is between 80 to 110 feet per minute



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The numbering block generally consists of two letter wheels or one number and one letter wheel manually operated and four number wheels which move automatically and number from 0001 to 9999. All numbers can be reset by hand to begin at any desired number

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TELEVISION STATION KTVH in Wichita, Kansas got an unusual "first" recently when the opportunity to film an operation in a local hospital presented itself. Because of the competitive nature of the market we did not hesitate to accept the hospital's offer.

Hardly any time was devoted to preliminary arrangements or calculations for exposure since the operating rooms of hospitals are the "Sun Chambers" hereof—essentially painted to professional cameramen.

This assignment was an eye-opener for future stories in comparable surroundings. Fast film and fast lenses are all that are required. Processing can be done with the usual lab machine. Our station operates a Houston "Labmaster" purchased early in the course of assembling the company's "light weight" film unit.

Our coverage of this operation was limited to a single man with one camera. The operating room was approximately 20x25 feet and offered no obstacles. The operating table was located at one end of the room under a giant single circular light. No other illumination was installed in the room for the photography and the available light was beamed directly on the patient.

A reading from the room was taken and the meter indicated $f/5.6$, based on a exposure rating of 160 for DuPont 931 reversal. This reading included reflection from the beige colored tile walls. To counter-balance any deep shadows that might arise from the doctors or nurses leaning toward the patient, $f/8$ was used as the basic exposure at 24fps.

The illumination from the overhead



THE CAMERAMAN was not allowed to walk closer than six feet of patient—the operating room—but this presented no handicap with the camera fitted with a range of lenses. Another cameraman MacConkey may be seen in background with his Bell & Howell 70-28 camera.

FILMING AN OPERATION FOR TV

How author filmed unusual surgical operation for KTVH newscast, using a B&H 70DR camera, Dupont 931 reversal film and available light.

By JOE W. MACCONKEY

(News Director, KTVH-TV, Wichita, Kansas)



THE B&H 70-28 equipped with a flash and a wide-angle lens proved adequate for the assignment. MacConkey wore the usual producing garb in the operating room.

operating light was not comparable in intensity to anything used on our commercial sets or the regular sets for televised shows at our studio.

The circular glass covered illumination unit is designed to eliminate all heat. The lens of the light itself is made of heat-absorbing glass. Inside the lens are rings of 250 watt spotlights arched downward at a 45 degree angle.

Some illumination from bare 150 watt light bulbs mounted atop this central light produced some reflection of light from the tile walls.

Distance from camera to subject was no problem. We were cautioned to

remain outside the sterile field immediately surrounding the operating table. Besides our Bell & Howell 70DR 16mm hand camera, there were two newspaper photographers using a Speed Graphic and a Roliflex, both equipped with electronic flash. With the operating table occupying the majority of the room we were limited to an area six feet from the subject.

Actually, an operation is a daily routine for any hospital, but what made this case outstanding was the newly-developed instrument used and the type of surgery performed. A bone malformation in the ear of an eight-year-old girl had caused parotid

Continued on Page 38

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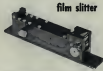
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PERHAPS TOO OFTEN, in writing for the professional 16mm cameraman, we dwell too much on the tools and equipment used in cinematography and not enough on the human element—the cameraman himself, and particularly the attributes which make a successful cameraman: imagination, artistry, and a creative talent.

One of the things the annual competitions for non-theatrical films has revealed conclusively is how really important is creative cinematography to motion pictures of this type.

The primary purpose of a business or industrial film is to sell a product, idea or a service. To do this with motion pictures is the challenge faced by the independent industrial film producer or head of in-plant film unit almost daily; but in the final analysis, it is the creativity and know-how of the cameraman that often contributes most to the success of the production.

This is not intended to take anything away from the creative talent that provides the cameraman in productions of this kind—the writers, for example, who know—or should know—how to write good photography into a script. But almost any experienced cameraman can contribute a great deal to the "screen appeal" of a business or industrial film when invited to sit in on its planning. And this every 16mm film producer and in-plant film unit head should do.

But is every industrial film cameraman qualified by experience and peculiar talents to make such contributions? On the basis of the photography of those non-theatrical films entered in the important annual competitions previously mentioned, it would seem that most of them are. In non-theatrical film production today we find none of the "house movies" type of cinematography that marked early-day industrial films, many of which were ineptly lighted, carelessly focused, and generally unimaginative in camera treatment.

Perhaps the most formidable challenge faced by the professional 16mm cameraman today is the fact that the basic subject matter of most industrial films is, by its very nature, visually uninteresting. His problem is to enliven it—give it pictorial impact that will arouse an emotional response from an audience.

Because this is so, it is imperative that the photography of such pictures be a vital part of the production's



THE RIGHT CAMERA ANGLE has a lot to do with achieving pictorial impact and pleasing composition—creating a cinematographic "twist" by suspense. Here a General Motors cameraman has given the camera the maximum advantage of the tripod for that of an assembly line speedster for a company promotional film.

The Need For Creativity In Non-theatrical Cinematography

How imaginative camera work creates industrial films that win friends and influence people.

By CHARLES LORING

planning. The cameraman should sit in on the pre-production planning conferences and be allowed to present his suggestions for the photographic treatment of the picture. Very often this has another advantage—that of cutting corners and saving costs. The real cost of a production never begins until the actual shooting begins, and it's how the production is planned to accommodate and facilitate the photography that invariably leads to completing the production on schedule and within the budget.

The cameraman should be encour-

aged to offer suggestions and ideas for the visual treatment of the subject. Often he will come up with a suggestion for creating a scene or sequence that has genuine production value without enlarging the budget.

So you are the cameraman on one of these productions. You believe you have the talent and know-how to do the job assigned to you. You determine what your unit head or producer wishes to achieve through a period of the script. You visualize the photographic treatment and the

Continued on Page 54



AUDITORIUM OF RUSSIA'S Kinopanorama Theatre, where motion pictures are shown on a series of individual screens arranged in two circular tiers. There are no seats and spectators stand or walk about as they

view the exhibition with its stereoscopic sound. At this photo was made, only the lower tier of projection screens was being used, and the upper tier was dark. (Photo courtesy USSR)

Russia's Circular Kinopanorama

System uses eleven cameras for the photography and two tiers of screens arranged in a circle, one above the other, for projection.

By ARTHUR VOYCE

A UNIQUE METHOD for exhibiting motion pictures was unveiled by the Russians at the new Kinopanorama Pavilion, which was opened to the public in Moscow on July 22, 1955.

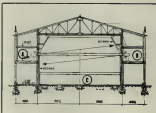
This circular cinema theatre (*Krugovaya Kinopanorama*), erected near the southern entrance to the USSR Exhibition of Economic Achievements, in Moscow, is fascinating to Russian movie fans because of the unusual projection techniques and the exciting effects produced. The audience can see moving pictures on two bands of 360° screens—one under the other—below the dome of the auditorium.

The circular Kinopanorama is a further development of the Russian panorama system, shown for the first time in Moscow in 1950 and at the Brussels International Exposition in 1953. The Russian panorama system was adapted

from ideas originally suggested by the French in 1926 (also said to be the basis for the American Cinemascope system). The new Kinopanorama system is similar to the American Cinemascope developed by the Walt Disney studio in 1955. Both systems are based on synchronized projection of a picture by eleven projectors on a 360° screen divided into eleven segments. However, the Russian system

Continued on Page 44

CROSS-SECTION of Russia's circular Kinopanorama theatre. It consists of three floors: the first (C) is the auditorium where spectators view the screened pictures. The second and third floors are actually balconies surrounding the open auditorium and its screens. Pairs of projectors for showing pictures on the lower and upper screens is shown at A and B—each machine projecting its segment of the film in a series directly across the auditorium. (Courtesy Exhibitors' Association)



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KINOPANORAMA

Continued from Page 41

composition. The sound is "live," full-bodied, and well-synchronized with the action, effectively heightening every aspect of the screen presentation. The projector control panel also controls the stereophonic sound track apparatus and many other machines.

The first Soviet kinopanoramic stereophonic film presented was "The March of Spring." The film opens with striking scenes of racing Tuckermen horsemen celebrating the advent of spring. This is followed by an impressive panorama of Zaporozhye (in the Ukraine) factories. Next, the camera cut across to the Caspian oil fields and present a sequence depicting the extraction of "black gold" from the bottom of the sea. The cameras move on to Leningrad and display a series of aerial shots of the great city's squares and historic buildings. Finally the "March" winds up at Moscow's Red Square, where the annual May Day parade is in full swing.

The film was produced by the Central Documentary Film Studios and the Animated Cartoon Film Studios. It was directed by Vadik Katsenyan and Leonid Makhsuch. The cameramen were I. Besarabov, A. Seman, L. Antonov, D. Babichenko and I. Ivanov-Vano.

The building of the circular Kinopanorama is 99'4" in diameter. The auditorium, placed in the center of the building's main floor is 39 feet in diameter and has an area of 2495 square feet; its height 33 feet. Along the perimeter of the auditorium, at the first floor level, runs a foyer 34 feet wide. The foyer can also be utilized as an exhibition hall. The exterior wall of the circular foyer is of glass-framed panels running the full height of the hall. The entrance and exit doors are of frameless, transparent, specially treated, unbreakable glass.

On the first floor in the back of the building are located the stairway and a number of auxiliary service rooms which have their own entrance. The projection room and its auxiliary services are located on the second floor over the foyer. The third floor contains the ventilation chambers and machinery. The lighting on all floors is artificial.

The auditorium ceiling is lined with sound absorbing, aluminum-framed panels. The lighting of the auditorium and the foyer is of the indirect, luminescent type.

Architecturally, the building is simple and uncluttered by ornament. Its cylindrical shape, the lower part of which is glazed in along its entire perimeter, gives it a modern look. The upper, black part of the wall is punctuated by small rhythmically spaced apertures which form an attractive pattern of grilles for the intake ducts of the ventilation system. The building, 34'8" high, is crowned with a large glow-lighted sign "Kinopanorama."

The theater was planned and designed by studio No. 15 of the Mosproekt Institute. The authors of the project are N. Strigolov, architect, and G. Muratov, engineer. Vladimir Kotos of the Cinaphoto Research Institute was in charge of the cinematographic equipment installation. The actual construction took a little more than three months. Equipment and machinery were manufactured by plants in Moscow, Leningrad, Kiev, Sverdlovsk, and Odessa.

KAZUO MIYAGAWA

Continued from Page 41

particularly difficult jobs he uses the old standby, Eastman Tri-X.

As we watched Miyagawa at work on his current color film, "Ukikusa," he was using only 450 foot-reels of illumination on a well-lit interior. For color production either Eastman or Agfa film is used, he said.

The set lighting arrangements in Japanese studios are left largely in the hands of the Nipponese equivalent of the head gaffer in Hollywood. But Miyagawa, because of his stature as a cinematographer, spots most of the lights on his sets.

Because most of the sets are diminutive, it is often a problem to find enough space to wedge in lights; many times electricians hand-held fill lights, because there is little or no room for mounting the lamps on stands.

Frequently a tripod will not fit on a Japanese set. Miyagawa, like many other Japanese photographers, uses a series of triangular frameworks of wood for mounting the camera at the

varying heights he requires. As we watched him at work on "Ukikusa," we noticed that very often his camera was only two feet above the floor level, a common height for Japanese films in which the actors spend much of their time kneeling.

Miyagawa was working with a Mitchell NC instead of the Hollywood standard, the BNC. To drown camera sounds, a Boney was invariably used. When more "blimping" was needed, an assistant threw a blanket over the camera.

Miyagawa never had to worry about mike boom shadows simply because no conventional mike boom was used. Japanese sound men, since the very early days of sound, have taped their microphones to bamboo poles and lowered them into the sets from the catwalks overhead.

Lengthy preproduction planning is a luxury which is afforded Miyagawa over other photographers. Because he presently shoots only two or three pictures a year, he usually is given four weeks to study a script, whereas most other Japanese cameramen get a flat two weeks to plan their work.

Once a film has begun, Miyagawa is in the scramble on the sound stage with the rest. Production seldom falters until a picture is finished. Saturdays and Sundays are also work days on the Japanese lots.

Many films at Daiel are allotted a straight 45 days schedule from the time the camera first turns until the film is ready for showing. Nothing short of disaster ever steps these schedules.

Front-office policy allows Miyagawa to shoot at a ratio of only two-to-one. Thus, for every shot there are always several rehearsals for action, sound and camera.

In discussing the highly praised Japanese color photography, Miyagawa pointed out one important factor which must be considered in any evaluation. The Japanese need approximately only 50 prints for their distribution, he said, while larger countries like the U.S. usually require hundreds. As a result, the Japanese use the original negative for release printing, increasing the chances for better tonal quality in the final prints.

Miyagawa's motion picture career began 32 years ago, after he failed his high school entrance examinations and was forced to seek steady employment.



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It was the Japanese policy at the time that neophyte cameramen start their apprenticeships in the darkrooms. Miyagawa stayed four years in the old Nikkon studio lab. Later he was promoted to assistant cameraman. In 1936 he became a director of photography. Since that time he has photographed 75 feature-length films.

Despite his acknowledged skill, Miyagawa is never studying new developments and techniques. He is an avid reader of *American Cinematographer*.

Miyagawa, like most competent cinematographers, is not a person to rest on his laurels. He indicated his philosophy of photography when he confided: "I am never satisfied. I rarely look at what I have done in the past. Instead, I continually strive to find new ways of filming more effectively in the future."

MARCH OF SCIENCE

Continued from Page 41

available on a production basis, more than 350 in its catalog. These glasses differ in the ingredients used to make them and, consequently, in their properties.

Ordinarily glass is made of sand, soda and lime. When Schott first tackled the problem of making optical glass, crown glass and flint glass—in which lead was introduced to increase the index of refraction and to permit suitable dispersion combinations—were the two basic types used for optical purposes.

Better Performance

Schott added barium oxide and boric acid to the glass batch, making it possible to compute optical systems of better performance. This work was particularly valuable for the improvement of microscopes. Later, out of the basic research, modern photo glasses were developed.

In the constant pursuit of better quality optical glass, manufacturers in Germany and the U. S. began to experiment with rare earth sands about 25 years ago. These sands are the raw material from which the rare earths are obtained by processing and are found in only a few places in the world (Europe, Far East, and the U.S.A.).

Chemically, the rare earths are defined by the specific construction

of an inner electron shell. Strictly speaking, therefore, only lanthanum oxide (as the colorless component in optical glasses) belongs to the rare earths. In actual practice, however, the elements thorium, tantalum and niobium are designated in addition as rare earths and the elements yttrium, cerium and didymium also can be included.

Too Expensive to Use

Yttrium and some of the other rare earths are so expensive, they cannot be used for glass production. Cerium and didymium are coloring elements. The former to a small extent and the latter to a great extent are of interest in the production of colored glass. In addition, cerium is used with optical glass to obtain resistance to radiation coloring.

The experiments with rare earths revealed a new difficulty, in addition to the two old ones that are major problems encountered in the melting process. Normally, glass manufacturers must deal with bubbles and striae, two objectionable defects that must be eliminated as far as possible.

Bubbles caused by gas released when chemicals (mostly oxides added to improve the refractive index) are heated to a very high temperature during the melting, sometimes do not escape when the glass is not soft enough. They are usually dealt with in the refining process, but have no detrimental effect on the image quality, in any case.

Striae may arise from a glass batch being mixed insufficiently, chemicals being set free as a result of the glass batch attacking the walls of the clay melting pot or evaporation on the surface. This defect is remedied by adequate stirring of the glass.

It was found that rare earth elements would attack clay pots to such an extent the resulting glass could not be used. Only when it was discovered that pure platinum pots do not react easily to rare earths did it become possible to melt glasses with high refraction indexes and reduce the amount of striae caused by the rare earth elements.

Eastman Kodak Pioneers

Eastman Kodak did pioneer research work in the development of rare earth glasses about 25 years ago. To cover its developments, Kodak sought and was granted patents in various countries in the late '30s. One

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of these patents was for the sealing of optical glasses with leatherman only. A fundamental Kodak patent (Murray) for the production of rare earth glasses has expired.

Other firms, such as Corning, Bausch & Lomb, Pittsburgh, Chance and Para-Martin, also did research work in this field. Independently, Schott made its first rare glass in 1941. Two other rare earth glasses were brought out in 1943 and 1944. They all contained thorium as well as leatherman, as do the rare earth glasses developed in the new Schott laboratory in West Germany in 1951.

The significance of these developments may be seen in the fact that almost all high-precision lenses (those with a minimum of three elements) made today contain one or two elements made of rare earth glass. It's easy to understand why if one considers that a faster speed and better image can be obtained from photographic lenses containing elements made with rare earth glasses.

Less Elements Required

With rare earth elements, a lens requires less elements than with the usual glasses and yet provides the



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same quality performance. If the lens designer wishes, he can achieve a faster speed and better image by substituting specific rare earth glasses for other elements in a design.

All new glasses are designed to give better image quality by improving resolution across the entire field covered by the lenses. This is particularly significant in color photography.

According to Schott scientists, glasses of high refractive index and low dispersion containing high rare earth content are considered to offer the peak in performance today. They permit better correction in the lens system than other glasses.

It is a mistake, however, to think that only rare earth glasses can offer finest quality. No rare glass was used

for the U. S. satellite tracking camera. A substantially different type of glass than that used for camera lenses was required.

Besides the glasses of high refractive index, those of low refractive index with either very high or very low dispersion are of great importance. In this field, Schott is said to share its leadership with Kodak.

* * *

IN THE DECEMBER 1958, issue of *American Cinematographer*, a new electronic focusing device having possibilities in technical cinematography was described. Called OAR for "optical automatic ranging," it is the development of Howard M. Grant, research director for Cinescope, Inc., Encina, Calif.

More recently the company has announced a new OAR development, the Sens-OAR-chrome, a compact, lightweight electronic color monitor and control unit capable of displaying information revealing variations in hue (principal observed wavelength) and in intensity (at that wavelength) of light received from test samples. Even more recently has been the device's adaptation to rapid and positive analysis of reflected color from opaque test objects as well as of transmitted color (from transparent or translucent objects) suggesting that Sens-OAR-chrome has possible application in the production of color film for motion pictures and television.

As monitor, quality control, or laboratory test instrument, Sens-OAR-chrome may be operated either continuously or intermittently. It operates on standard 60-cycle 110-112 volt current.

Weight is only 40 pounds, complete with light source. Size is 10 by 12 by 30 inches. The entire instrument is enclosed in a metal case with carrying handle.

Sens-OAR-chrome's operation, though unique among color control and analysis devices, is relatively simple. It employs the OAR system on which Cinescope, Inc. has patents pending.

The optical system of Sens-OAR-chrome spreads received light into a spectral array in which each wavelength is brought to a different focus. A vibrating sensor, composed of a plurality of photo-sensitive elements, continuously samples this array. The sensor's current output provides positive servo commands which move the

optical system so that it always senses the focal point of the principal observed wavelength to the midpoint of the oscillating sensor's travels.

The servo movements effecting these adjustments of the optical systems are converted into variations in an output current within range of 40 volts. This current, displayed by a voltmeter, sensitively indicates minute alterations of hue; and it is also available as a control current of at least 0.25 watts power for any processing controls required to restore predetermined color characteristics to product.

Also, the electromotive output of the photo-cell system is indicative of the intensity of radiation received at the principal observed wavelength. Suitably amplified and displayed on another voltmeter with 50 volt range, this current reveals variations in pigment saturation. This control current, too, is available with at least 0.25 watts of power for any desired processing adjustments to maintain predetermined color saturation or density in the product. ■

ANIMATOR

Continued from Page 37

ity? Are your figures easy to read against the background, pleasing to the eye?

Do you have a three-dimensional solidity? Do the figures seem to have depth? Are they in perspective? Do they match the background?

Do you have four-dimensional drawing? Remember that each drawing you make is the representation of a figure in action.

The latter element is the one that is sometimes difficult for the young animator—and the layman—to comprehend. For in animation, you are dealing not with pictures that will be hung on the wall and studied, but with moving figures. It is the most ephemeral of the arts. ■

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NEED FOR CREATIVITY

Continued from Page 45

lighting you will use with the idea of putting the whole picture on the screen in a manner best suited to the subject matter.

Obviously, almost every subject requires a particular style of lighting and photography—a stark, emphatic style of photography for, say, a film for a hospital or social agency, to convey a feeling of realism. Or a smooth, subtle treatment for a promotion film for women's wear, cosmetics, or luxury apparel.

The photographer of non-theatrical films should approach each new production with a fresh viewpoint, a new approach, rather than follow the same old methods on every picture. He should be inventive, creative—and sometimes even daring.

The cameraman in search of inspiration for photographic treatment of an industrial subject can often draw upon the styles and techniques used by Hollywood cinematographers in filming dramatic photographs and films for television. The two types of film production are no longer as far apart as they used to be, now that there is a trend toward more dramatic handling of commercial subjects.

Lighting, in the hands of a skilled craftsman, is a potent force in creative cinematography and it has taken on a special importance for commercial subjects. In the beginning it was thought that lighting for commercialism was simply a matter of piling flood lights around the camera so that every inch of a subject was evenly lit. Commercialism often went wrong, in fact, not to get "tricky" with the lights. Today, both client and producer have learned just how much good lighting can do to dramatize even the dullest industrial film subject. Black-and-white photography can be greatly enhanced by use of cross-lighting and back-lighting which impart "roundness" and dimension to objects, thus making them visually more emphatic. Tiny spotlights, correctly placed, can point up small areas of mechanical subjects and focus attention upon them. Dimming the general set lighting at a given moment in the sequence can make such areas stand out even more importantly.

In filming commercial subjects in color, a great deal can be done with colored light, strategically used. Even

a drill machine can be given strong visual appeal by outlining it with colored light or silhouetting it against a background flooded with colored light.

The mobile camera can do much to give pace and movement to an otherwise static subject. Ordinarily it is as best to use camera movement to complement the movement of people or machines within the scene. For example, in filming the movement of a product along an assembly line the camera can move right with it and record at close range the various processes that convert it into finished form. Similarly, the camera can move with a workman as he goes from one area to other areas completing an operation.

In commercial filming it is even permissible to occasionally break the rule and use camera movement for its own sake, as long as the movement is smoothly executed and does not detract from the subject. For example, a scene might open on a long shot of an industrial process. As the action progresses the camera slowly moves in until it encloses a small but vital segment of the operation. In photographing a static "office" scene—necessary to many business films—it is sometimes effective to focus action by dolly-ing in with the camera from a two-shot of two men talking across a desk to a close-up of one of them. The in-plant cameraman will find that the cranes, fork lifts and movable platforms used in the plant can effectively be used as dollies for making moving camera shots.

A complement of lenses of various focal lengths is an absolute necessity. The "normal" focal length lens (1-inch for 16mm camera, 2-inch for 35mm camera) is, of course, the lens most widely used in production. But telephoto lenses of various lengths will permit extreme closeups of objects which would be lost to any other lens. A detail as small as 1/4-inch in diam-

eter can be made to fill the screen, or an object miles away can be brought up into striking closeup.

Because invariably there is a great deal of detail which can only be shown to best advantage when the camera moves in very close, rarely can there be too many closeups in a well-made commercial film, provided that the cameraman re-establishes his subject adequately from time to time. Moreover, from the cinematic standpoint, closeups are pictorially forceful and add much to the impact of the film.

The wide-angle lens is also a "must" in commercial production. The camera crew is often called upon to work in close quarters on location and, in such cases the wide-angle lens is the only means of obtaining anything that resembles a long shot. It also permits working closer to a subject and therefore the use of fewer lights than would be necessary to get the same shot with a longer lens. But the wide angle lens has its own special creativity potential, too. Because of its fore-shortening characteristic and inherent wide depth of field, this lens can be used to produce dramatically-exaggerated compositions and split field shots.

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unique for the filming of commercials, but one which must be carefully used, is that of the subjective camera. In this device the camera assumes the viewpoint of some person appearing in the film. What the camera sees is what he sees. The action is played right into the lens and a first-person narration completes the illusion. It requires careful timing and camera movement and should not be overused lest it become obvious as a "gimmick."

As for unusual camera angles, the commercial film offers unlimited possibilities to the imaginative cameraman. No photographic subject is actually dull; it is only the treatment of it that can be dull when photographed by an unimaginative technician. There is often great beauty in industry—the towers of an oil refinery, the fiery retorts of a steel mill, the sweeping patterns of farm machines marching across fields of grain. The most prosaic subject can be made visually interesting by means of unusual camera angles or artistic framing. Often just tilting the camera a bit or assuming a low-angle viewpoint will add punch to a composition.

The cameraman should always keep

in mind, however, the fact that the primary purpose of the business film is to tell the client's story and not to show off the virtuosity of the cameraman. There is always the danger of going overboard and adopting photographic innovations that are striking but fail to present the subject in a way that will tell the client's story (and sell his message) most effectively. The best way to guard against this possibility is to have a technical advisor from the sponsor's staff on the set at all times to approve each set-up before it is photographed. A nuisance, perhaps—but one that will save many retakes.

At first glance some industrial film scripts may not seem to offer much creative latitude for the imaginative cameraman to work in, but there is always some phase of every subject which can be built up pictorially and made visually farcical on the screen. The in-plant cameraman, especially, should look closely at his subject, avoid the thought that "here is just another nuts-and-bolts film," and use his camera to sell the product, service or idea that is the subject of the film. ■

FILMING AN OPERATION FOR TV

Continued from Page 43

definess for the child. Surgery was the only answer, and the confined area made the operation one of delicate and skillful maneuvering.

The surgeon used a microscope recently developed in Western Germany to define the area as the child's ear where the surgery was needed. The microscope was mounted on an arm that moved freely from a shaft attached to the base of the operating table.

Throughout the six-hour operation, the surgeon viewed the interior of the ear through the twin eye-piece microscope.

Because the doctor was limited in his movement, my field of photography remained more or less constant. The usual complement of circulating nurses and the surgeon's assistant placed five persons around the operating table in addition to the doctor.

There was no restriction placed on any cameraman, and nurses continued their work without hampering the camera's pick-up. In such a situation,

it becomes too easy to obtain the overall picture and neglect the closeup dramatic scene of the surgeon working on his patient.

An orderly produced a five-foot step-ladder that gave us an opportunity to shoot over the shoulder of the doctor, keeping patient, microscope and hands in frame.

By using a Linch Bell & Howell lens from this high angle, we were able to capture dramatic sequences fully portraying the surgeon's skill and the part the microscope played in the operation.

Although we moved around the operating room frequently, the exposure was kept constant at f/4. A 15mm Elgott lens was used for establishing shots and some transitional scenes, but the one-inch lens proved to be the handiest under the six-foot restriction imposed by the sterile field.

Noise of the camera equipment was sterilized before entering the operating room. We wore sterile gowns, head covers and face masks, but this

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win the extent of the safety requirements.

Should the operation have been of a more serious nature and involved more closures, possibly greater restrictions would have been placed on the cameraman.

It is only fair to point out that this operating room would probably be singular in size and layout when compared with other operating areas even in the same hospital.

Of the seventeen rooms in surgery at this hospital, all varied in size. One key factor in the even distribution of light is the use of the beige tile on the walls. All of the rooms were constructed of the same material.

My first attempt at filming an operation was generally considered successful from a story point of view. Technically, the film was crisp and had a good image of tones giving it better than average transmission quality for television.

We now are attempting to arrange film coverage on an "open heart" operation scheduled for the future. However, our presence in the field of film for news presentation created several problem areas, none of which are technical.

Any future coverage is the realm of medicine will be governed by a recently established council to study the public acceptance of such films. When a story such as this is filmed strictly for mass consumption, the media must be considered. The council will determine in the future

whether the story has any medical significance and if the safety factor has enough variables to assure a successful conclusion to the case.

The future of such filmed operations as we used on three newsmen has many areas for development. Actual televising of operating room procedure is almost a daily occurrence at Kansas University Medical Center. However, this televised medical achievement is specifically for educational and training purposes.

At this time we see no area for change in the basic photographic plan as outlined here. Choice of camera angles and perhaps restricted movement would be the only limiting factors. There is no need to consider a long focal length lens when shooting in the average size operating room. In fact, we use of the opinion that the wide angle and the one inch normal lens for a 16mm camera are sufficient. The long lens is only added weight and would offer little to the coverage of the story.

Use of a tripod would be a splendid aid but we are reluctant to suggest it because the portable features of a hand camera would be subverted. With existing conditions in the philosophical acceptance of medical coverage in operations, the unobtrusive photographer has the best chance to film succeeding operations. Technically, the operating room is a medical counterpart of a soft lighted studio set that presents no problems to the news cameraman. ■

rubber eyepiece which is adjustable to adapt to the eye of the user and to focus on emulsions etched on the prism. After adjusting the focus, the eyepiece is secured in position with a set screw.

As the image is reflected directly behind the lens before it passes through the shutter, the operator is therefore able to view it without loss of brilliance, even when the variable shutter is practically closed. The reflex viewfinder magnifies the reflected image more than 8 times. This image emanates from the specially-treated surface of a fine glass petiole about 12/100th of a millimeter in thickness, which is permanently sealed and therefore footproof. The light break of the finder is relatively negligible—something like 0.04 diaphragm—and therefore should have no effect on the exposure of the film. As a further safeguard, however, there is the flexible rubber eyepiece against which the operator rests his eye while filming, thereby automatically shutting out any troublesome light from this source. Whenever the camera is used without the operator using the eyepiece, there is a lens located underneath the reflex viewfinder which permits closing the finder tube from light admitted at the viewing ocular.

It is the manufacturer's claim that the so-called Pathe 16 camera has undergone engineering refinements aimed to make the camera deliver the best possible professional results. The test run given the camera seems to bear out this claim. The film transport mechanism is smooth-operating and easy to thread—although there are threading guidelines etched in the camera's interior to aid the novice in the film loading operation.

The Pathe 16's full versatility is afforded by utilizing a wide range of extra equipment and accessories, including a trick-meter drive which snaps on to the standard camera for continuous, time-lapse, or special photography; a microscope adapter; extension tubes; a range of zoom lenses; and a 2½-to-1 anamorphic lens attachment that will also double for

Continued on Page 49

PATHE "WEBB M" 16MM CAMERA

Continued from Page 37

tool is located on the front plate, beneath the lens turret. This consists of a lever which engages a series of slots in the diaphragm to set the shutter in open or closed position, or in three intermediate positions. It may also be moved freely from "open" to "closed" to effect fades and dissolves. Maximum opening of the variable shutter is 180 degrees and the minimum, totally closed.

The rotating lens turret is of triangular design, accommodates three lenses, and automatically locks in each of the three positions. The turret takes 16mm lenses having standard C-mount threads. The camera is normally furnished with a 1-inch f/1.5 Vidosstigmat lens in focusing mount by Bayko &

James, Inc., U. S. distributors of the Pathe 16.

In filming a test roll of film with the camera, it was found that the camera's reflex system is ideally suited to any professional filming undertaking. The obvious advantages of a reflex finder operating in conjunction with the taking lens are exact framing without parallax problems and accurate focusing through the lens.

There are two focusing tubes on the left side of the camera and are integral with the door. The upper tube is an offset, parallax-corrected viewing tube functioning the same as viewing tubes on most cine cameras. Immediately below is the tube of the reflex viewfinder. It is fitted at the rear with a

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